User Manual

Access Control System

- Easy-to-use Interface
- All-in-one Design
- Mifare Card Reader
- Environmental Friendly and Power Saving.
- 2.0 Megapixel Webcam
- 16 x 16 Matrix LED programmable indicator

USER MANUAL Revision 1.1

FCC Statement

This device complies with part 15 FCC rules. Operation is subject to the following two conditions：

- This device may not cause harmful interference.
- This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class "a" digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at him own expense.

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Disclaimer

We reserve the right to make changes, without notice, to any product, including circuits and/or software described or contained in this manual in order to improve design and/or performance. We assume no responsibility or liability for the use of the described product(s), conveys no license or title under any patent, copyright, or masks work rights to these products, and makes no representations or warranties that these products are free from patent, copyright, or mask work right infringement, unless otherwise specified. Applications that are described in this manual are for illustration purposes only. We make no representation or warranty that such application will be suitable for the specified use without further testing or modification.

Warranty

We warrant that each of its products will be free from material and workmanship defects for a period of one year from the invoice date. If the customer discovers a defect, We will, at its option, repair or replace the defective product at no charge to the customer, provided it is returned during the warranty period of one year, with transportation charges prepaid. The returned product must be properly packaged in it's original packaging to obtain warranty service.

If the serial number and the product shipping data differ by over 30 days, the in-warranty service will be made according to the shipping date. In the serial numbers the third and fourth two digits give the year of manufacture, and the fifth digit means the month (e. g., with A for October, B for November and C for December).

For example, the serial number 1W07Axxxxxxxx means June of year 2009.

Check List

Before using this Access Control System PC, please make sure that all the items listed below are present in your package

There are two different type of designs for Access Control System Package

Model name: W07I93S-CHG1AC

Accessories List:

- 1 x SA series Access Management System
- 1 x SA series Access Management System Quick Install Guide
- 1 x Manual & Driver CD
- 1 x Power adapter
- Mounting and screws (Option)

Make sure that all of the items listed above are present. Do not attempt to apply power to the system if there is damage to any of its components.

Customer Service

We provide service guide for any problem as follow steps. The first, contact with your distributor, sales representative, or our customer service center for technical support if you need additional assistance. You may have the following information ready before you call：

- Product serial number
- Peripheral attachments
- Software (OS, version, application software, etc.)
- Description of complete problem
- The exact wording of any error messages

In addition, free technical support is available from our engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products. Please do not hesitate to call or e-mail us.

Notice

1. Do not touch the LCD panel surface with sharp or hard objects.
2. Do not use abrasive cleaners, waxes or solvents for cleaning, use only a dry or damp, soft cloth.
3. Use only with a high quality, safety-approved, AC/DC power adapter.

Safety Precautions

- **Warning!**

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

- **Caution!**

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Safety and Warranty

1. Please read these safety instructions carefully .
2. Please keep this user's manual for later reference.
3. Please disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
4. For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
12. Never pour any liquid into an opening. This could cause fire or electrical shock.
13. Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.
14. If any of the following situations arises, get the equipment checked by service personnel:
    A. The power cord or plug is damaged.
    B. Liquid has penetrated into the equipment.
    C. The equipment has been exposed to moisture.
    D. The equipment does not work well, or you cannot get it to work according to the user’s manual.
    E. The equipment has been dropped and damaged.
    F. The equipment has obvious signs of breakage.
15. Do not leave this equipment in an uncontrolled environment where the storage temperature is below -20° C (-4°F) or above 60° C (140° F). It may damage the equipment.

Revision History

Rev	Date	Note	Author
1.0	Feb. 10, 2011	First Release	Henry
1.1	April. 08, 2011	LEDM- RS232 Protocol	Henry

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CHAPTER 1

Hardware Utility

- ✓ Easy-to-use Interface
- ✓ All-in-one Mechanical Design
- ✓ Environmental Friendly and Power Saving.

1.1 Introduction

Entrance Security is a big matter. But currently the mainstreams in the surveillance market are still based on traditional RISC based Access Management Systems which are using for very limited applications. Throughout the latest technologies for innovative and completed solutions, there shall be more and more choices for people to maintain the security management system. Winmate releases a new Access Management System for Campus and Home security applications, which called "**W07I93S-CHG1AC**" is a cutting-age access security management system with rapid data control, Radio Frequency Identification (RFID), Motion Sensor and Digital I/Os Technology for Campus and Home Entrance security maintenances. It is a versatile and powerful Access Management solution that can be installed and configured in a variety of ways.

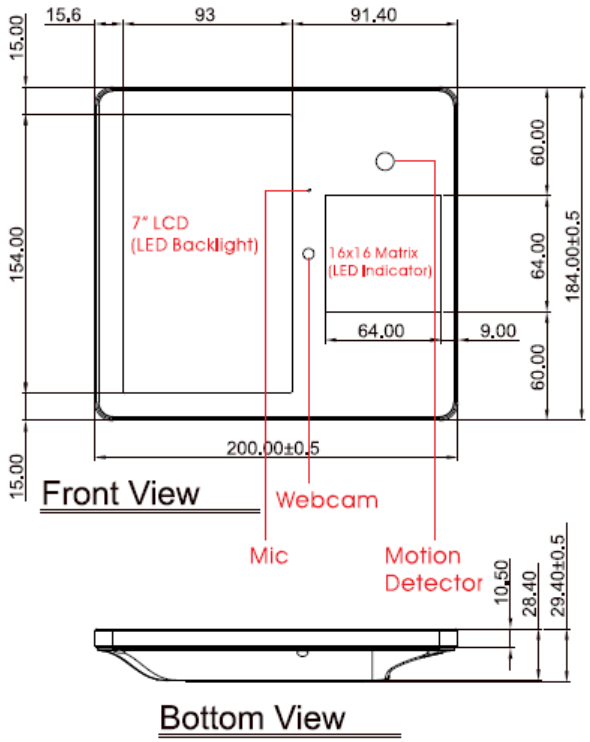
1.2 Specification

TFT Characteristics	
Size	7” LED backlight panel
Resolutions	800 x 480
Brightness	320 nit
Contrast Ratio	400 : 1
Viewing Angles	-70~70(H),-50~60(V)
Touch Screen Specification	
Touch	4 Wires Resistive Touch-screen / USB interface
SBC Specification	
Form Factor	3.5 inch I931 SBC
Processor	Intel® US15WP Chipset
BIOS	Award 4Mbit Flash
System Chipset	Intel® N270 1.6 GHz Processor
System Memory	1 x SO-DIMM DDR2 400/533(Default 512 MB, Max 1GB)
Ethernet Controller	Dual Realtek RTL8111B Gigabit Ethernet 10/100/1000 Mpbs
Graphic Controller	Intel GMA 500, Shared memory, max.224MB
Audio Controller	Realtek-ALC 888-GR
Storage	1 x PATA (Mini PCI-E Interface) SSD Slot (Default 4GB, Max 128 GB)
Watchdog	256 levels
System Output Connectors	
Webcam	2.0 Megapixel Slim Type Camera Module
Microphone	Digital Microphone build in Camera Module
Mifare Card Reader	USB interface, 13.56 MHz, 50 mm(Maximum Reading Range)
Digital I/O	2 x DI, 2 x DO ports (Phoenix Type) for environment control
Ethernet LAN	2 x RJ45
USB Ports	1 x USB Type-A Receptacle
12V DC Power Input	1 x 12V DC IN (Lockable, 2.5ψPower Jack)
Power Consumption	20W (TBD)
Operating Temp.	0°C ~ 45°C
OS	Windows XP Embedded (Optional)

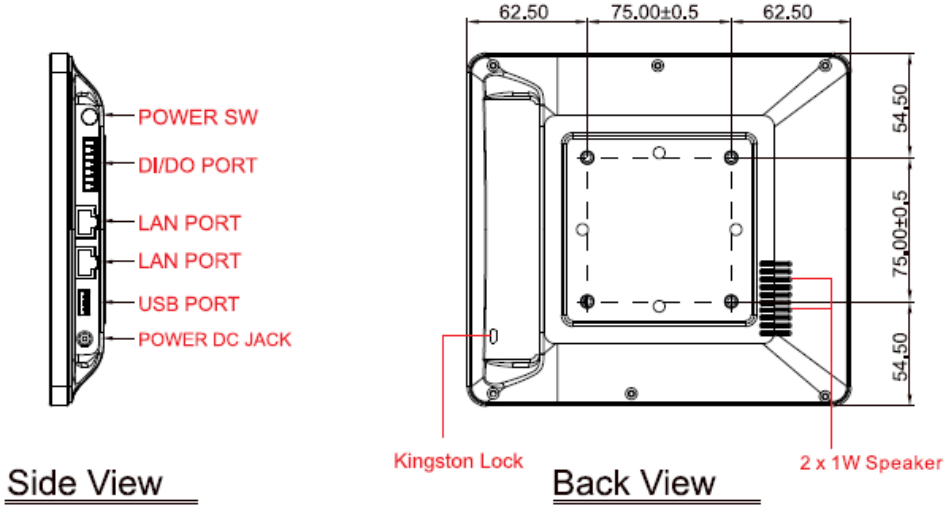
1.3 Interface and Mechanical Dimensions

The following figure shows the I/O arrangement of the Access Management PC. The backside of the chassis contains most of the connectors

Front View



Rear View

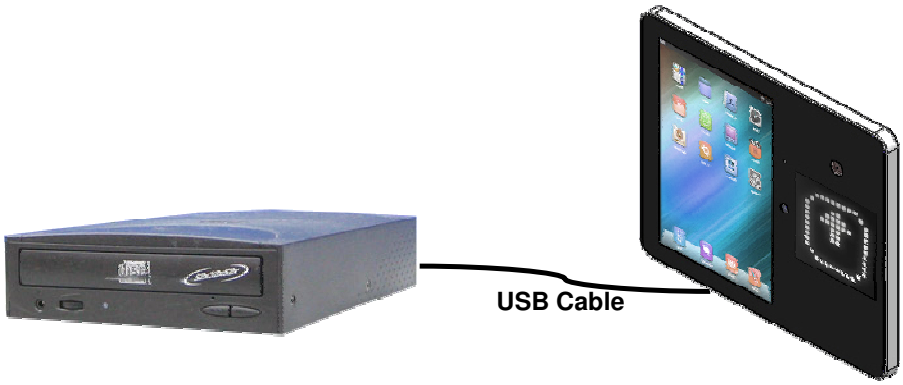


1.4 Starting the Access Management PC& O/S Installation

1. Connect the power to AC/DC adapter, and connect the power cord to the AC outlet.
2. Press the power on switch to start the Access Management PC.
3. Press “DEL” to enter the CMOS setting and check the BIOS setup.
4. You may install your own O/S if it is not installed.

When installing O/S for this Access Management PC, please follow the steps and use external equipment as **Keyboard and Mouse.**

(a) Please use external USB DVD-ROM to run the O/S and Driver setting (as picture showed below).



1.5 Driver Installation

The Access Management PC comes with a User’s Manual and Driver CD that contains most of the drivers and utilities of your needs.

1. Following the step by step to install Driver which includes: Chipset, VGA, Audio, and Ethernet.
2. Following the step by step to install the Touch screen if necessary.

CHAPTER 2

Touch Driver Installation

This chapter offers information on the touch driver Installation utility

- Installation of Touch Driver
- Configuration Utility

2.1 The Premier Touch Driver Installation

TouchKit is the Premier Touch software, which contains drivers of the touch panel controllers for the specified communication connectors, RS232, PS/2 and USB, and the other two utilities.

The two utilities are as follows:

- Touch Tray support

  This is utility for emulating the right and left button of mouse through controlling touch panel. Users can toggle between right or left mouse buttons by this utility.

- Configuration support

  The calibration and draw test of touch panel are done by this utility. Besides, users can add or remove for new RS-232 or PS/2 touch panel devices.

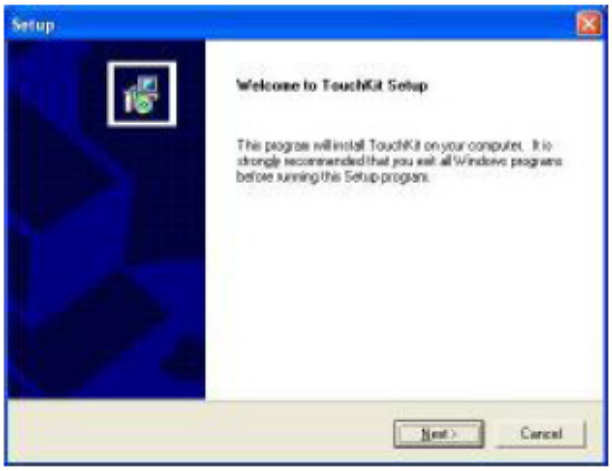
Follow these steps to install TouchKit.

Step.1 Put the TouchKit CD to CD-ROM.

Step.2 Open the Win2000_XP directory.

Step.3 Double click the Setup.exe, then windows starts to run the installation program. Notice that does not plug the USB controller on the system before the installation has been finished.

Step.4 Click Next to continue installation. And it will auto-detect touch devices in COM1 port at your Access Management PC.



Step.5 Following the step by step to finish the driver installation.

2.2 ***Configuration Utility***

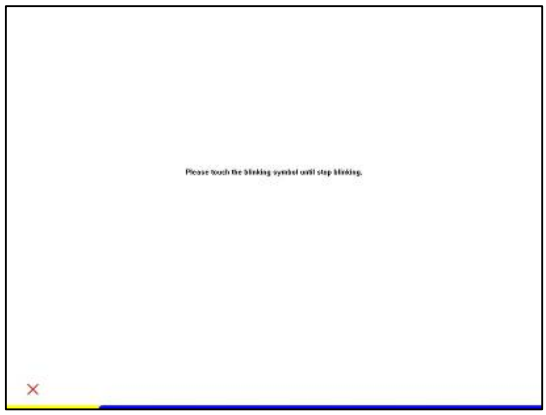
After finishing the installation, please follow the steps to test the configuration utility.

Step.1 Click the “TouchKit” shortcut function in the desktop.

Step.2 Enter “General” function and choose the language you need.

Then go to next step.

Step.3 Correct 4 point locations on screen with the Panel. Screen display as follows



Step.4 Play “Yes” to continue if 4 points calibration test is fine and finish the test.

CHAPTER 3

Graphic Driver Installation

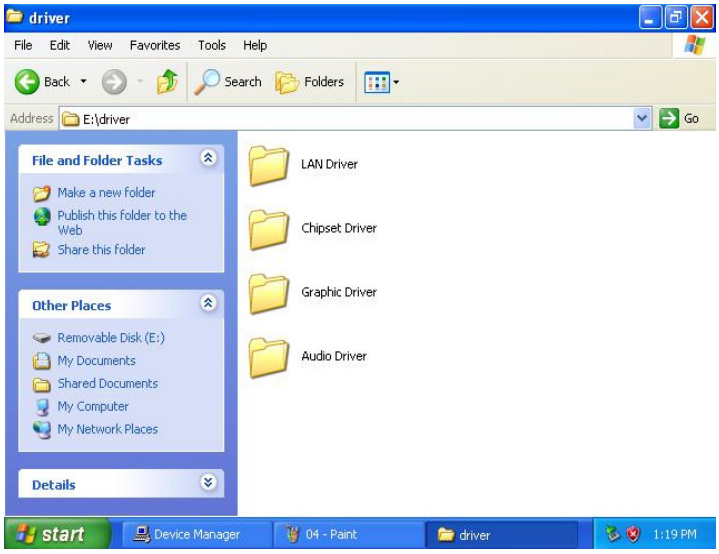
This chapter offers information on the chipset software Installation utility

- Installation of Graphic Driver
- Panel Resolution Setting

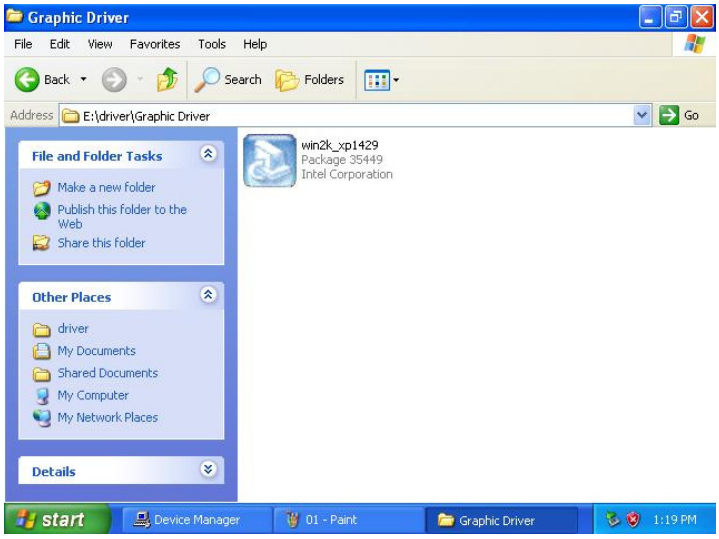
3.1 Standard CMOS Feature

I931 Motherboard is equipped with Intel 945GSE / ICH7M Companion Device. The Intel Graphic Drivers should be installed first, and it will enable “Video Controller (VGA compatible). Follow the instructions below to complete the installation. You will quickly complete the installation.

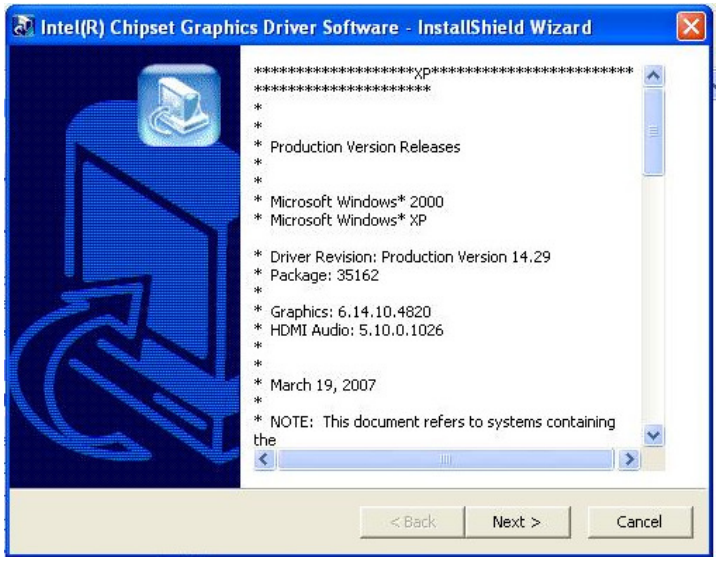
Step.1. Insert the CD that comes with the Motherboard. Open the file document “Graphic Driver “.



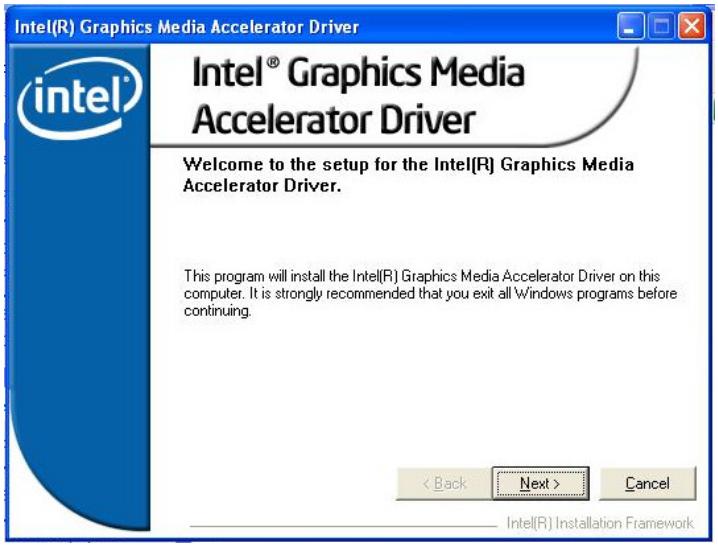
Step.2. Click on “win2K_xp1429” to execute the setup.



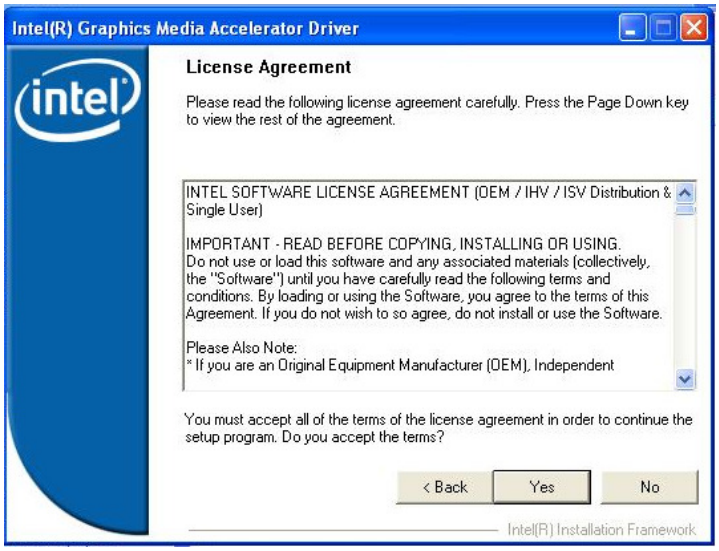
Step.3. Click on “Next “ to install Driver.



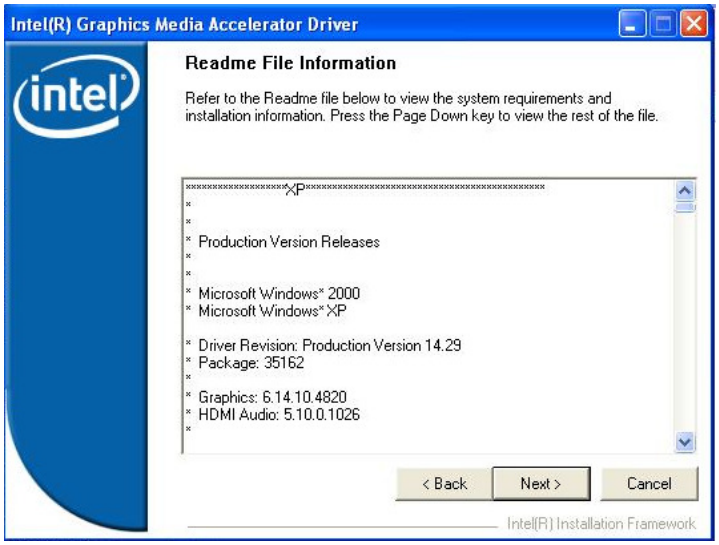
Step.4. Click on “Next “ to install Driver.


Intel(R) Graphics Media Accelerator Driver
intel
Intel® Graphics Media Accelerator Driver
Welcome to the setup for the Intel(R) Graphics Media Accelerator Driver.
This program will install the Intel(R) Graphics Media Accelerator Driver on this computer. It is strongly recommended that you exit all Windows programs before continuing.
< Back
Next >
Cancel
Intel(R) Installation Framework

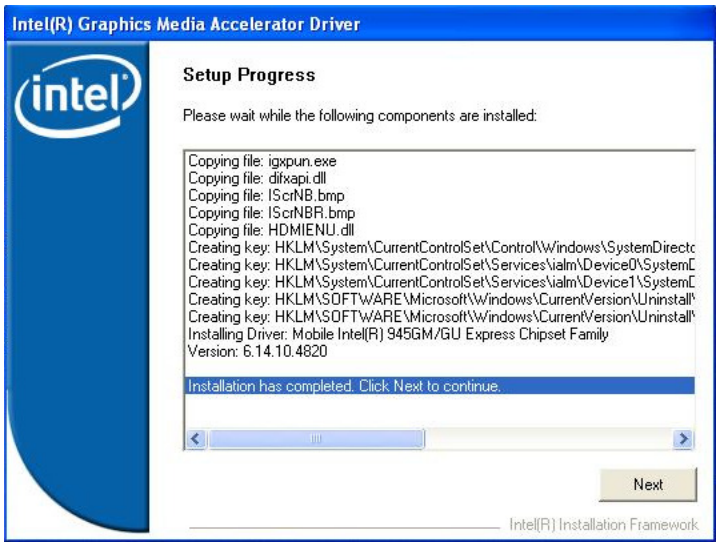
Step.5. Click on “Yes “ to agree License.


Intel(R) Graphics Media Accelerator Driver
License Agreement
Please read the following license agreement carefully. Press the Page Down key to view the rest of the agreement.
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
< Back
Yes
No
Intel(R) Installation Framework

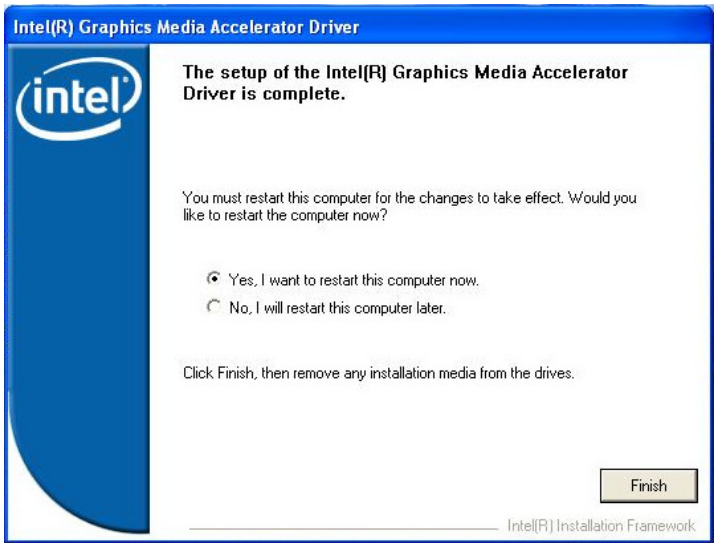
Step.6. Click on “Next “ to install Driver.


Intel(R) Graphics Media Accelerator Driver
Readme File Information
Refer to the Readme file below to view the system requirements and installation information. Press the Page Down key to view the rest of the file.
XP
* Production Version Releases
* Microsoft Windows* 2000
* Microsoft Windows* XP
* Driver Revision: Production Version 14.29
* Package: 35162
* Graphics: 6.14.10.4820
* HDMI Audio: 5.10.0.1026
< Back
Next >
Cancel
Intel(R) Installation Framework

Step.7. Click on “Next “ to install Driver.



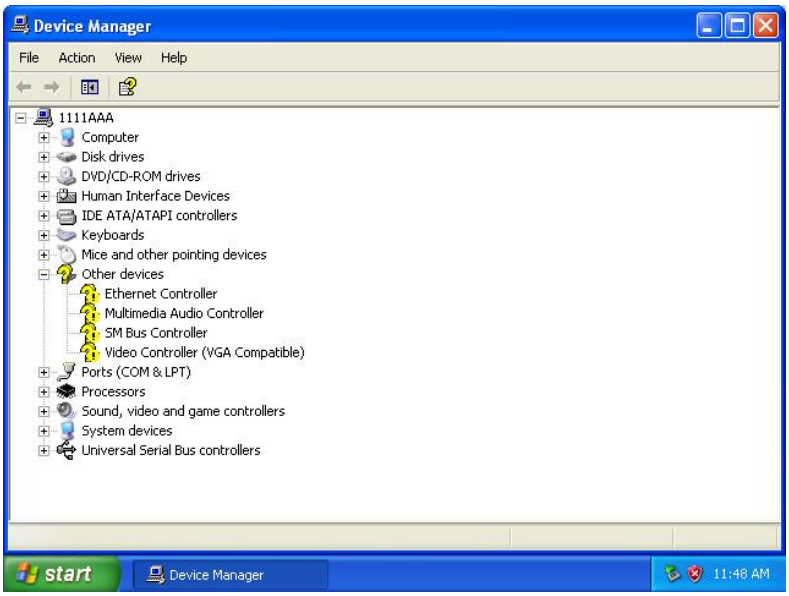
Step.8. Click on “Yes, I want to restart this computer now“ to go on.


Intel(R) Graphics Media Accelerator Driver
The setup of the Intel(R) Graphics Media Accelerator Driver is complete.
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart this computer now.
No, I will restart this computer later.
Click Finish, then remove any installation media from the drives.
Finish
Intel(R) Installation Framework

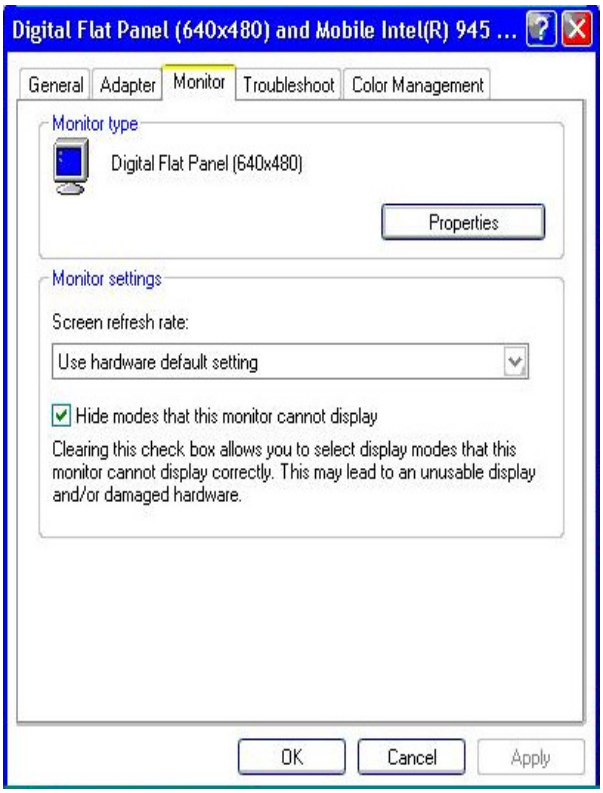
3.2 Panel Resolution Setting

Step.1. Right-click the desktop, and then click Properties.

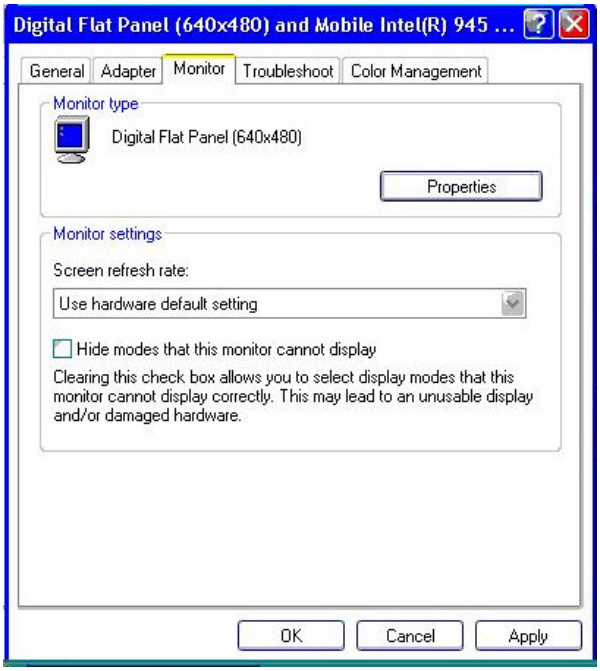
Step.2. In the Display Properties dialog box, click the Settings tab.



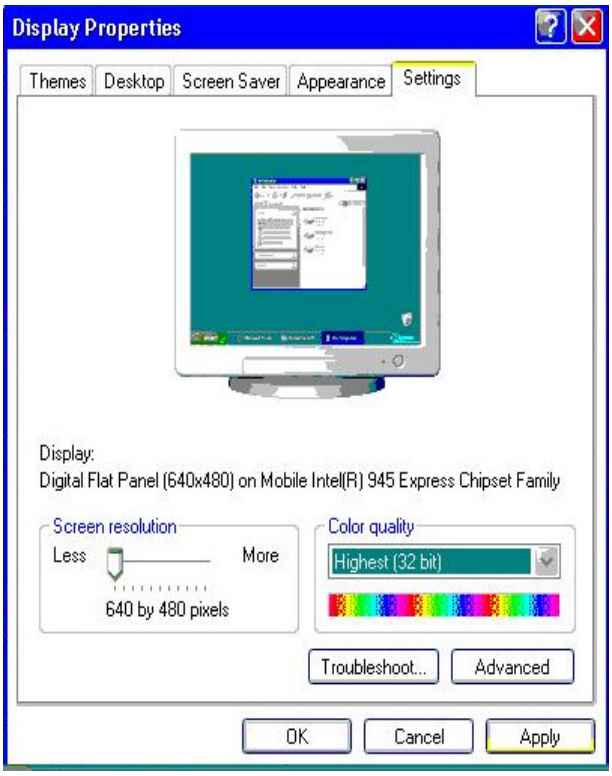
Step.3. Click on “Monitor”.



Step.4. Click on “Hide modes that this monitor cannot display” to remove this option.



Step.5. Click on “Setting”, then could choose 32bit color qualify.



CHAPTER 4

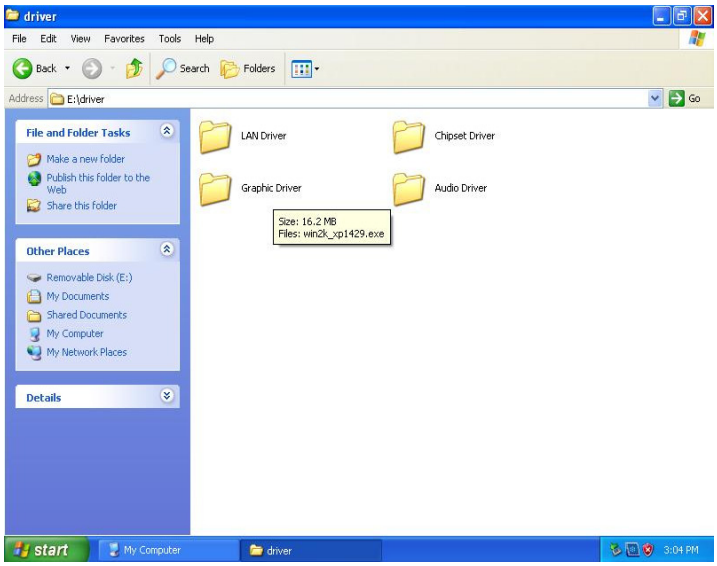
Chipset Driver Installation

This chapter offers information on the chipset software Installation utility

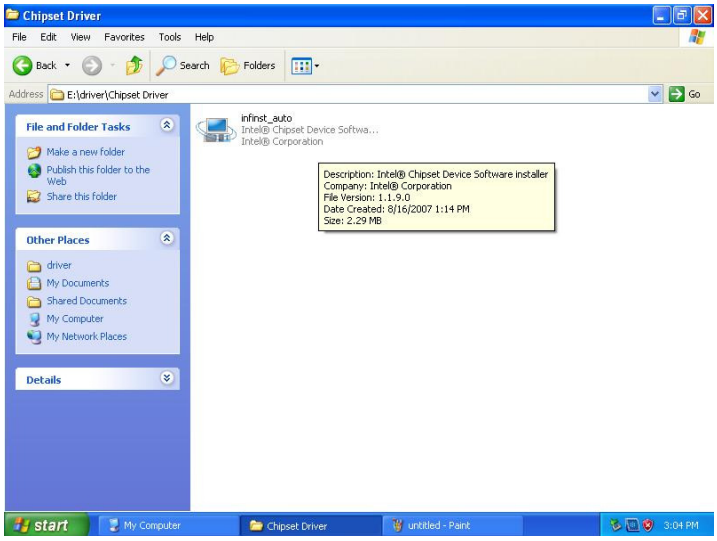
- Installation of Chipset Driver
- Further information

4.1 Standard CMOS Features

Setp.1. Insert the CD that comes with the motherboard. Open the file document “Chipset Driver”.



Setp.2. Click on “infinst_auto.exe“ to install driver.



Setp.3. Click on “Next“ to install driver.

Intel® Chipset Device Software
Intel® Chipset Device Software
Welcome to the Setup Program
This setup program will install the Intel® Chipset Device Software onto this computer. It is strongly recommended that you exit all Windows* programs before continuing.
< Back
Next >
Cancel
Intel® Installation Framework

Setp.4. Click on “Yes “ to agree License

Intel® Chipset Device Software
Intel® Chipset Device Software
License Agreement
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework

Setp.5. Click on “Next“ to install driver.

Intel® Chipset Device Software
Intel® Chipset Device Software
Readme File Information
Refer to the Readme file below to view the system requirements and installation information.
Press the Page Down key to view the rest of the file.
****
* Product: Intel(R) Chipset Device Software
* Release: Production Version
* Version: 8.3.0.1013
* Target Chipset#: Q33/G33/G31/P35
* Date: March 05 2007
****
< Back
Next >
Cancel
Intel® Installation Framework

Setp.6. Click on “Next“ to install driver.

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Progress
Please wait while the following setup operations are performed:
Installing Driver: Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
Version: 8.2.0.1008
Installing Driver: Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
Version: 8.2.0.1008
Installing Driver: Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB
Version: 8.2.0.1008
Installing Driver: Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC
Version: 8.2.0.1008
Click Next to continue.
Next
Intel® Installation Framework

Step.7. Click on “Yes, I want to restart this computer now“ to go on.

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Is Complete
intel
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart this computer now.
No, I will restart this computer later.
Click Finish, then remove any installation media from the drives.
Finish
Intel® Installation Framework

CHAPTER 5

Ethernet Driver Installation

This chapter offers information on the Ethernet software installation utility.
Sections include:

- Introduction
- Installation of Ethernet Driver

5.1 Introduction

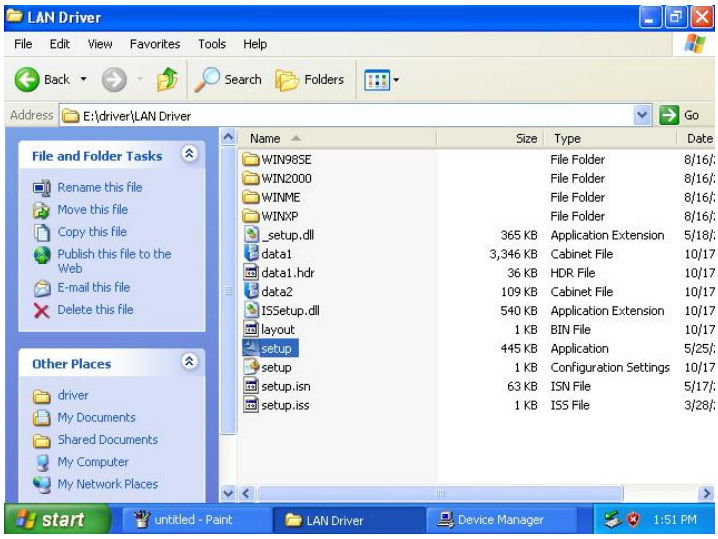
I931 Motherboard is equipped with the Realtek RTL8111B Gigabit Ethernet controller combines a triple-speed IEEE 802.3 compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver, PCI Express bus controller, and embedded memory. With state-of-the-art DSP technology and mixed-mode signal technology, it offers high-speed transmission over CAT 5 UTP cable or CAT 3 UTP (10Mbps only) cable. Functions such as Crossover Detection & Auto-Correction, polarity correction, adaptive equalization, cross-talk cancellation, echo cancellation, timing recovery, and error correction are implemented to provide robust transmission and reception capability at high speeds.

The device supports the PCI Express 1.0a bus interface for host communications with power management and is compliant with the IEEE 802.3u specification for 10/100Mbps Ethernet and the IEEE 802.3ab specification for 1000Mbps Ethernet. It also supports an auxiliary power auto-detect function, and will auto-configure related bits of the PCI power management registers in PCI configuration space.

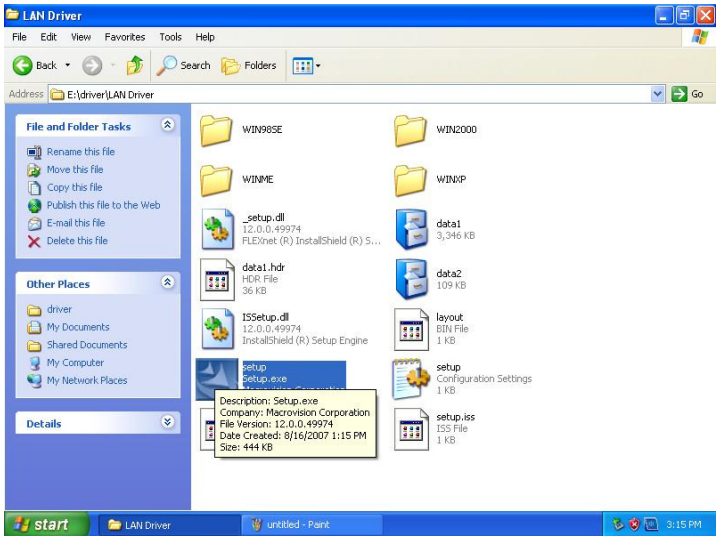
5.2 Installation of Ethernet Driver

The Users must make sure which operating system you are using in the I931 Motherboard before installing the Ethernet drivers. Follow the steps below to complete the installation of the Realtek RTL8111B LAN drivers. You will quickly complete the installation.

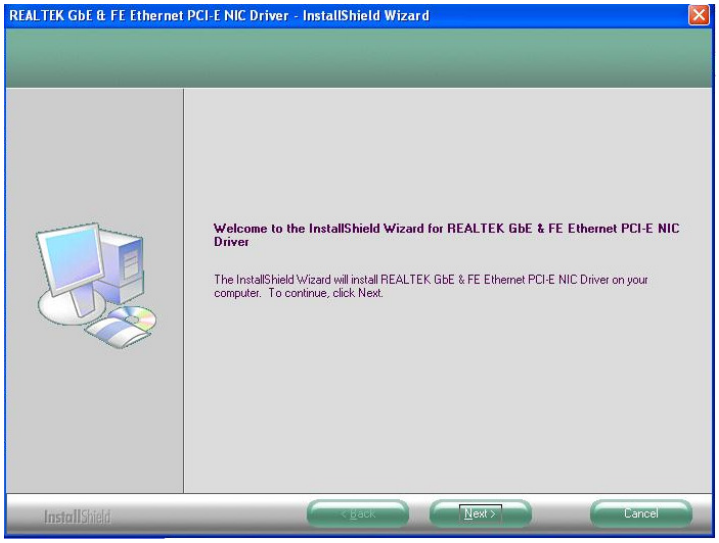
Step.1. Insert the CD that comes with the motherboard. Open the file document “LAN Driver”.



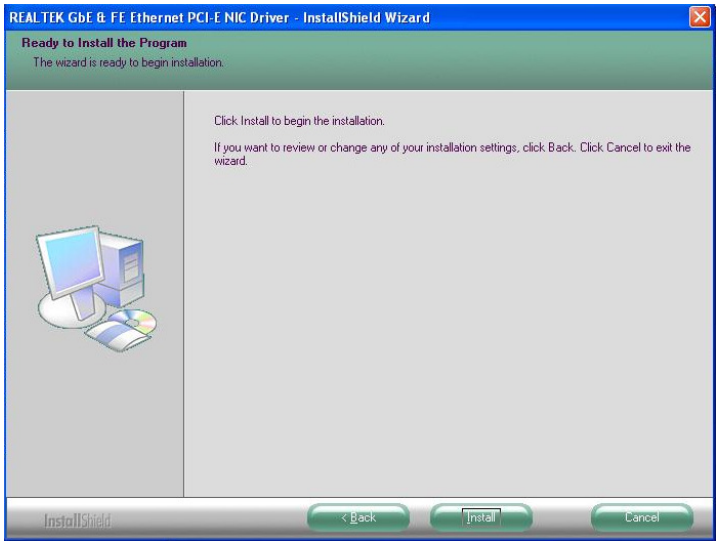
Step.2 Click on “Setup” to execute the setup.



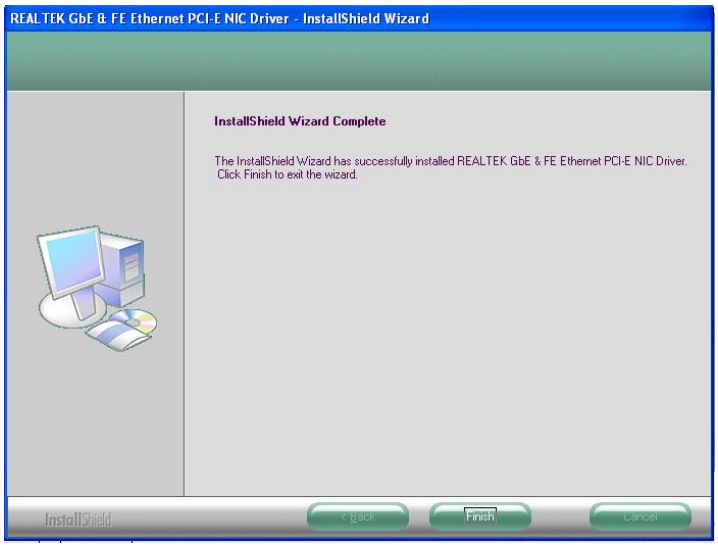
Step.4. Click on “Next“ to install driver.


REALTEK GbE & FE Ethernet PCI-E NIC Driver - InstallShield Wizard
Welcome to the InstallShield Wizard for REALTEK GbE & FE Ethernet PCI-E NIC Driver
The InstallShield Wizard will install REALTEK GbE & FE Ethernet PCI-E NIC Driver on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

Step.5. Click on “Install“ to install driver.


REALTEK GbE & FE Ethernet PCI-E NIC Driver - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

Setp.6. Click on “Finish“ and go on.


REALTEK GbE & FE Ethernet PCI-E NIC Driver - InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed REALTEK GbE & FE Ethernet PCI-E NIC Driver. Click Finish to exit the wizard.
InstallShield
< Back
Finish
Cancel

CHAPTER 6

Audio Driver Installation

This chapter offers information on the Audio software installation utility.

Sections include:

- Introduction
- Installation of Audio Driver

6.1 Introduction

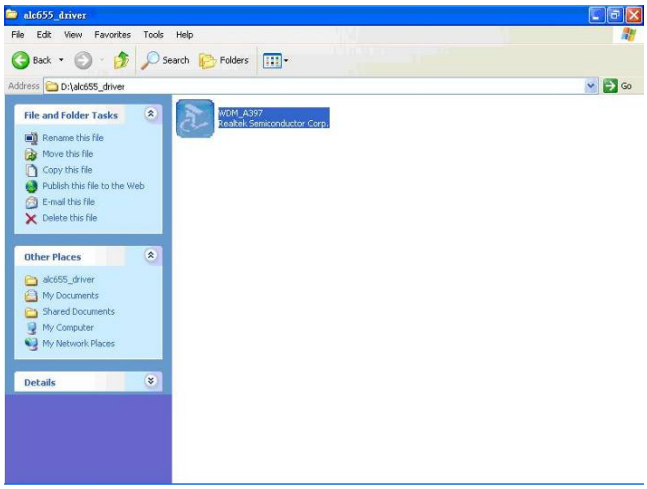
The I931 Motherboard is equipped with the ALC888-GR is a 16-bit, full-duplex AC'97 Rev. 2.3 compatible six-channel audio CODEC designed for PC multimedia systems, including host/soft audio and AMR/CNR-based designs..

The ALC888-GR provides three pairs of stereo outputs with 5-bit volume control, a mono output, and multiple stereo and mono inputs, along with flexible mixing, gain, and mute functions to provide a complete integrated audio solution for PCs.

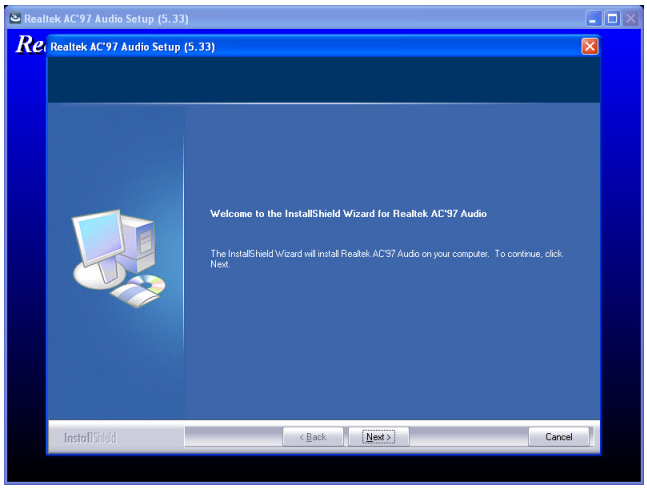
6.2 Installation of Audio Driver

The users must make sure which operating system you are using in the I931 Motherboard before installing the Audio drivers. Follow the steps below to complete the installation of the Realtek ALC888-GR Audio drivers. You will quickly complete the installation.

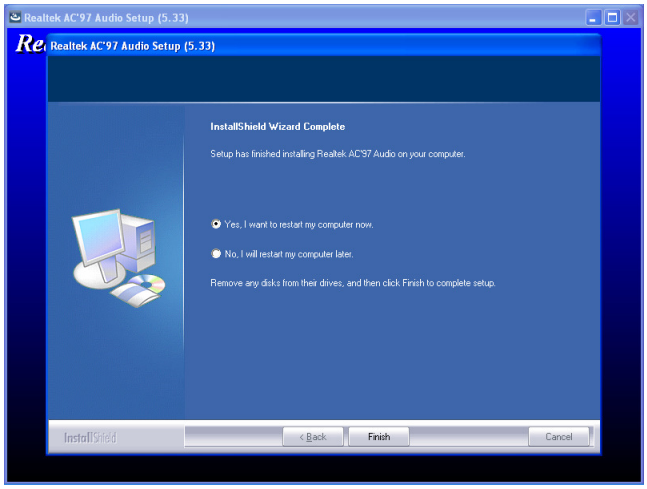
Step.1. Insert the CD that comes with the motherboard. Open the file document “Audio” and click on “WDM_R2.exe” to execute the setup.



Step.2. Click on “Next“ to install driver.


Realtek AC'97 Audio Setup (5.33)
Realtek AC'97 Audio Setup (5.33)
Welcome to the InstallShield Wizard for Realtek AC'97 Audio
The InstallShield Wizard will install Realtek AC'97 Audio on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

Step.3. Click on “Yes, I want to restart my computer now” to finish installation.


Realtek AC'97 Audio Setup (5.33)
Realtek AC'97 Audio Setup (5.33)
InstallShield Wizard Complete
Setup has finished installing Realtek AC'97 Audio on your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
InstallShield
< Back
Finish
Cancel

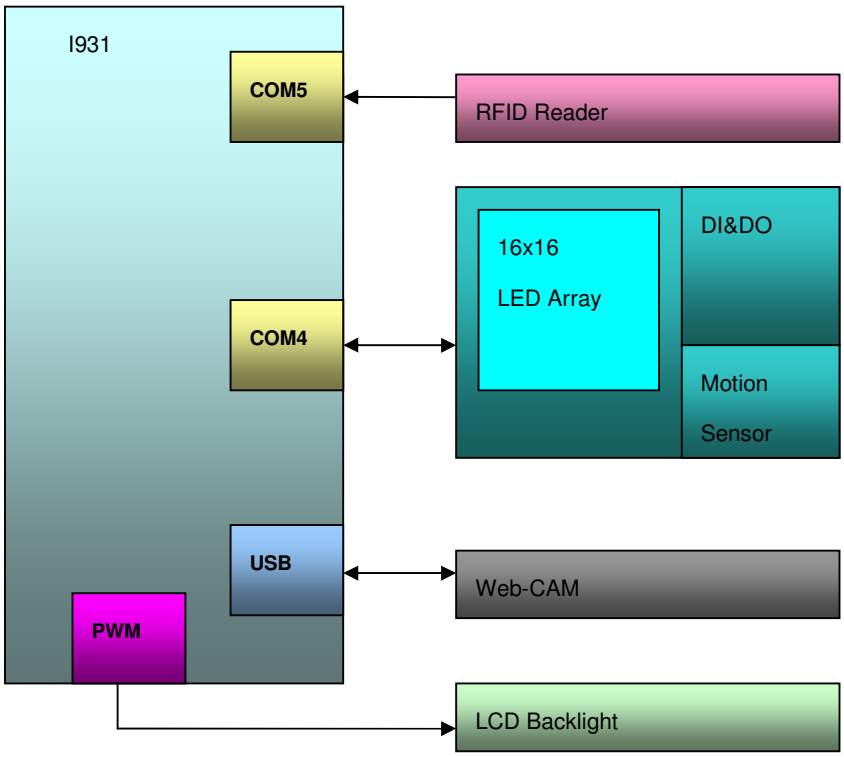
CHAPTER 7

LEDM- RS232 Protocol

This chapter describes how to set

BIOS configuration

7.1 7” Access Control PC Software system diagram.



Devices	SDK / Document
Motion sensor	LEDM ModBus Protocol
DI/DO	LEDM ModBus Protocol
16x16 LED Array	1. LEDM ModBus Protocol** 2. LED data example.
WebCAM	Windows DirectX and Winmate Source code.
LCD backlight Control	1. AP: Winmate source code reference 2. Driver installed ***

*COM5 with Baud rate 9600 ,8N1 and giving a ASCII string

** COM4 with Baud rate 9600,8N1.

*** Must install driver ,only for Win 7. XPE/XP no require to install.

7.2 Programmable MODBUS (3DI/2DO + 16x16 LED) Design Guide

Protocol:Support Modbus RTU protocol

7.2.1 Modbus RTU Command List

Command List	Function Description
ID 50 00 00 (CRC)	Get Product Name
ID 50 01 00 (CRC)	Get User Name
ID 50 02 00 "User Name" 00 00 (CRC)	Set User Name
ID 50 04 ID 00 (CRC)	Set ID
ID 50 05 00 (CRC)	Get Baud Rate
ID 50 06 00 BR 00 (CRC)	Set Baud Rate
ID 50 07 00 (CRC)	Get Firmware Version
ID 50 08 00 (CRC)	ReSet
ID 50 0B NN 00 (CRC)	Set WatchDog timeout value
ID 50 0C 00 (CRC)	Get WatchDog timeout value
ID 50 0D 00 (CRC)	Get Sensor value
ID 50 10 00 00 [A0] ~ [A31] 00 00 (CRC)	Set LED Frame
ID 50 11 00 0F 00 64 00 (CRC)	Play LED
ID 50 12 00 00 (CRC)	Stop LED
ID 50 27 FF 04 00 (CRC)	Set power on value
ID 50 28 00 (CRC)	Get power on value
ID 50 29 00 01 01 06 00 (CRC)	Set Continuous mode
ID 50 2A 00 01 00 (CRC)	Get Continuous mode
ID 50 2B 00 01 (CRC)	Trigger DO
ID 50 2C 00 (CRC)	Get All Status
ID 01 00 SS 00 01 (CRC)	Read Digital Input Value
ID 02 00 0F 00 01 (CRC)	Read Digital Input Value
ID 03 00 00 00 01 (CRC)	Read Digital Input Count Value
ID 04 00 00 00 01 (CRC)	Read Digital Input Count Value
ID 05 20 00 FF 00 (CRC)	Clear the Digital Input count value (Single channel)
ID 06 00 00 FF 00 (CRC)	Set the Digital Output value (Single channel)
ID 07 00 00 00 06 BC 00 3F (CRC)	Set the Digital Output value (Multi channel)
ID 08 00 00 00 01 (CRC)	Read Digital Output State(Multi channel)
ID 0F 20 00 00 01 BC FF 00 (CRC)	Clear the Digital Input count value (Multi channel)

7.1 Config Protocol Command Function :0x50

7.2 Sub Command Function :0x00 Get Product Name

Command	ID 50 00 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	00	Sub Function Code
	00	Reserve
Response	ID 50 00 00 “Model Name “ 00 00 (CRC) :OK	
	ID	00~FF
	50	Function Code
	00	Sub Function Code
	Model Name	N*Byte(ASCII)
	00 00	Reserve
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Description:

Get IO Board Product Name and FW Version.

Ex.

Get string “LEDM-L22604”

Example:

Send command: 00,50,00,00,00,35

Response: 00,50,00,00,4C,45,44,4D,2D,4C,32,32,36,30,34,00,00,29,83

“LEDM-L22604”

7.3 Sub Command Function :0x01 Get User Name

Command	ID 50 01 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	01	Sub Function Code
	00	Reserve
Response	ID 50 01 00 “User Name “ 00 00 (CRC) :OK	
	ID	00~FF
	50	Function Code
	01	Sub Function Code
	User Name	N*Byte(ASCII)
	00 00	Reserve
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Description:

Get Device User Name. Maximum to 16 characters allowed.

Ex.

Get string “UserName”

Example:

Send command: 01,50,01,00,01,A5

Response: 00,50,01,00,55,73,65,72,4E,61,6D,65,00,00,DE,74

“UserName”

7.4 Sub Command Function :0x02 Set User Name

Command	ID 50 02 00 “User Name “ 00 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	02	Sub Function Code
	00	Reserve
	User Name	N*Byte(ASCII) max:32byte
	00 00	Reserve
Response	ID 50 02 00 (CRC) :OK	
	ID	00~FF
	50	Function Code
	02	Sub Function Code
	00	Reserve
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Description:

Set Device User Name. Maximum to 16 characters allowed.

Example:

Send command: 00,50,02,00,55,73,65,72,4E,61,6D,65,00,00,DA,70

“UserName”

Response: 00,50,02,00,01,55

7.5 Sub Command Function :0x04 Set ID

Command	ID 50 04 ID 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	04	Sub Function Code
	ID	NEW ID Number
	00	Reserve
Response	ID 50 04 00 (CRC) :OK	
	ID	00~FF
	50	Function Code
	04	Sub Function Code
	00	Reserve
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Description:

Set ID header for writing packet to wanted device.

Example:

Send command: 00,50,04,00,00,74,C1

(set ID to 0x00)

Response: 00,50,04,00,02,F5

7.6 Sub Command Function :0x05 Get Baud Rate

Command	ID 50 05 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	05	Sub Function Code
	00	Reserve
Response	ID 50 05 00 BR 00 (CRC) :OK	
	ID	00~FF
	50	Function Code
	05	Sub Function Code
	00	Reserve
	BR	※1
	00	Reserve
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Description:

Get device transmitting rate.

Example:

Send command: 00,50,05,00,03,65

Response: 00,50,05,00,06,00,C3,7B

(get baud rate reference ※1)

※1:Baud Rate

Code Number	03	04	05	06	07	08	09	0A
Baud Rate(bps)	1200	2400	4800	9600	19200	38400	57600	115200

7.7 Sub Command Function :0x06 Set Baud Rate

Command	ID 50 06 00 BR 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	06	Sub Function Code
	00	Reserve
	BR	※1
	00	Reserve
Response	ID 50 06 00 (CRC) :OK	
	ID	00~FF
	50	Function Code
	06	Sub Function Code
	00	Reserve
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Description:

Set device transmitting rate.

Example:

Send command: 00,50,06,00,06,00,C3,3F

(set baud rate reference ※1)

Response: 00,50,06,00,03,95

※1:Baud Rate

Code Number	03	04	05	06	07	08	09	0A
Baud Rate(bps)	1200	2400	4800	9600	19200	38400	57600	115200

7.8 Sub Command Function :0x07 Get Firmware Version

Command	ID 50 07 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	07	Sub Function Code
	00	Reserve
Response	ID 50 07 00 “Firmware Version” 00 (CRC) :OK	
	ID	00~FF
	50	Function Code
	07	Sub Function Code
	00	Reserve
	“Firmware Version”	N*Byte(ASCII)
	00	Reserve
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Description:

Get Device Firmware Version. Maximum to 3 characters allowed.

Ex.

Get string “004”

Example:

Send command: 00,50,07,00,02,05

Response: 00,50,07,00,30,30,34,00,08,76

“004”

7.9 Sub Command Function :0x08 ReSet

Command	ID 50 08 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	08	Sub Function Code
	00	Reserve
Response	ID 50 08 00 (CRC) :OK	
	ID	00~FF
	50	Function Code
	08	Sub Function Code
	00	Reserve
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Description:

Reset device.

Example:

Send command: 00,50,08,00,07,F5

Response: 00,50,08,00,07,F5

7.10 Sub Command Function :0x0B Set WatchDog timeout value

Command	ID 50 0B NN 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	0B	Sub Function Code
	00~FF	NN=00 disable WatchDog NN=01~FF(100ms~25.5s)
	00	Reserve
Response	ID 50 0B 00 (CRC) :OK	
	ID	00~FF
	50	Function Code
	0B	Sub Function Code
	00	Reserve
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Description:

Set software watchdog timeout value. If timeout reset device.

Example:

Send command: 00,50,0B,00,00,44,C2

(set 0x00 disable watchdog)

Response: 00,50,0B,00,07,05

7.11 Sub Command Function :0x0C Get WatchDog timeout value

Command	ID 50 0C 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	0C	Sub Function Code
	00	Reserve
Response	ID 50 0C NN (CRC) :OK	
	ID	00~FF
	50	Function Code
	0C	Sub Function Code
	00~NN	NN=00 disable WatchDog NN=01~FF(100ms~25.5s)
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Description:

Get software watchdog timeout value.

Example:

Send command: 00,50,0C,00,05,35

Response: 00,50,0C,00,05,35

(get 0x00 disable watchdog)

7.12 Sub Command Function :0x0D Get Sensor value

Command	ID 50 0D 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	0D	Sub Function Code
	00	Reserve
Response	ID 50 0D HH LL (CRC) :OK	
	ID	00~FF
	50	Function Code
	0D	Sub Function Code
	HH LL	=0~65535
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Use for sensor(PYD1978)

This functional need detects continually, and observes the change value.

7.13 Sub Command Function :0x0E Get LED Value

Command	ID 50 0E 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	0E	Sub Function Code
	00	Reserve
Response	ID 50 0E 00 [A0] ~ [A31] 00 00 (CRC) :OK	
	ID	00~FF
	50	Function Code
	0E	Sub Function Code
	[A0] ~ [A31]	32Bytes
	00 00	Reserve
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

7.14 Sub Command Function :0x0F Set LED Value

Command	ID 50 0F 00 [A0] ~ [A31] 00 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	0F	Sub Function Code
	00	Reserve
	[A0] ~ [A31]	32Bytes
	00 00	Reserve
Response	ID 50 0F 00 (CRC) :OK	
	ID	00~FF
	50	Function Code
	0F	Sub Function Code
	00	Reserve
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Example:

Send command :" 00 50 0F 00 FF FF FF FF EF EF EF EF EF EF D7 D7 D7 D7 D7 D7 D7 D7 C7 C7 BB BB BB BB BB BB 11 11 FF FF FF FF 00 00 XX XX".

Response:" 00 50 0F 00 XX XX "….. Command valid.

byte[] LED={

0xff,0xff,0xff,0xff,0xef,0xef,0xef,0xef,0xef,0xef,0xd7,0xd7,0xd7,0xd7,0xd7,0xd7,

0xd7,0xd7,0xc7,0xc7,0xbb,0xbb,0xbb,0xbb,0xbb,0xbb,0x11,0x11,0xff,0xff,0xff,0xff };

	H				L				H				L				
LED[0]	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	LED[1]
LED[2]	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	LED[3]
LED[4]	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	LED[5]
LED[6]	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	LED[7]
LED[8]	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	LED[9]
LED[10]	1	1	0	1	0	1	1	1	1	1	0	1	0	1	1	1	LED[11]
LED[12]	1	1	0	1	0	1	1	1	1	1	0	1	0	1	1	1	LED[13]
LED[14]	1	1	0	1	0	1	1	1	1	1	0	1	0	1	1	1	LED[15]
LED[16]	1	1	0	1	0	1	1	1	1	1	0	1	0	1	1	1	LED[17]
LED[18]	1	1	0	0	0	1	1	1	1	1	0	0	0	1	1	1	LED[19]
LED[20]	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	LED[21]
LED[22]	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	LED[23]
LED[24]	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	LED[25]
LED[26]	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	LED[27]
LED[28]	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	LED[29]
LED[30]	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	LED[31]

7.15 Sub Command Function :0x10 Set LED Frame

Command	ID 50 10 00 00 [A0] ~ [A31] 00 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	10	Sub Function Code
	00	Reserve
	0x00~0x0F	Frame Number
	[A0] ~ [A31]	32Bytes
	00 00	Reserve
Response	ID 50 10 00 (CRC) :OK	
	ID	00~FF
	50	Function Code
	10	Sub Function Code
	00	Reserve
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Example1:

Set LED Frame 0

Send command :" 00 50 10 00 00 FF FF FF FF EF EF EF EF EF EF D7 D7 D7 D7 D7 D7 D7 D7 C7 C7 BB BB BB BB BB BB 11 11 FF FF FF FF 00 00 XX XX".

Response:" 00 50 10 00 XX XX "….. Command valid.

Example2:

Set LED Frame 1

Send command :" 00 50 10 00 01 FF FF FF FF EF EF EF EF EF EF D7 D7 D7 D7 D7 D7 D7 D7 C7 C7 BB BB BB BB BB BB 11 11 FF FF FF FF 00 00 XX XX".

Response:" 00 50 10 00 XX XX "….. Command valid.

```
byte[] LED=
{
        0xff,0xff,0xff,0xff,0xef,0xef,0xef,0xef,0xef,0xef,0xd7,0xd7,0xd7,0xd7,0xd7,0xd7,0xd7,
        0xd7,0xd7,0xc7,0xc7,0xbb,0xbb,0xbb,0xbb,0xbb,0xbb,0x11,0x11,0xff,0xff,0xff,0xff
};
```

	H				L				H				L				
LED[0]	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	LED[1]
LED[2]	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	LED[3]
LED[4]	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	LED[5]
LED[6]	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	LED[7]
LED[8]	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	LED[9]
LED[10]	1	1	0	1	0	1	1	1	1	1	0	1	0	1	1	1	LED[11]
LED[12]	1	1	0	1	0	1	1	1	1	1	0	1	0	1	1	1	LED[13]
LED[14]	1	1	0	1	0	1	1	1	1	1	0	1	0	1	1	1	LED[15]
LED[16]	1	1	0	1	0	1	1	1	1	1	0	1	0	1	1	1	LED[17]
LED[18]	1	1	0	0	0	1	1	1	1	1	0	0	0	1	1	1	LED[19]
LED[20]	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	LED[21]
LED[22]	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	LED[23]
LED[24]	1	0	1	1	1	0	1	1	1	0	1	1	1	0	1	1	LED[25]
LED[26]	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	LED[27]
LED[28]	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	LED[29]
LED[30]	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	LED[31]

7.16 Sub Command Function :0x11 Play LED

Command	ID 50 11 00 0F 00 64 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	11	Sub Function Code
	0x00~0x0F	Start Frame
	0x00~0x0F	End Frame
	0x0064	Time(every 10ms) Maximum=0xFFFF Ex: 0x0064=100*10ms=1S
	00	Reserve
Response	ID 50 11 00 (CRC) :OK	
	ID	00~FF
	50	Function Code
	11	Sub Function Code
	00	Reserve
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Example1:

Play Frame from Frame 0 to Frame 15 every 1second loop

Send command :" 00 50 11 00 00 0F 00 64 00 XX XX".

Response:" 00 50 11 00 XX XX "….. Command valid.

Example2:

Play Frame from Frame 5 to Frame 7 every 1second loop

Send command :" 00 50 11 00 05 07 00 64 00 XX XX".

Response:" 00 50 11 00 XX XX "….. Command valid.

Example3:

Play Frame from Frame 3 to Frame 3 every 1second loop

Send command :" 00 50 11 00 03 03 00 64 00 XX XX".

Response:" 00 50 11 00 XX XX "….. Command valid.

7.17 Sub Command Function :0x12 Stop LED

Command	ID 50 12 00 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	12	Sub Function Code
	00	Stop LED All dark
	00	Reserve
Response	ID 50 12 00 (CRC) :OK	
	ID	00~FF
	50	Function Code
	12	Sub Function Code
	00	Reserve
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Example:

Stop LED all dark

Send command :" 00 50 12 00 00 XX XX".

Response:" 00 50 12 00 XX XX "….. Command valid.

7.18 Sub Command Function :0x27 Set power on value

Command	ID 50 27 FF 02 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	27	Sub Function Code
	0xFFNN	Output value (NN=00~FF) Bit0[DO0], Bit1[DO1]
	00	Reserve
Response	ID 50 27 00 (CRC)	
	ID	00~FF
	50	Function Code
	27	Sub Function Code
	00	Reserve
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Description:

Set power on DO value.

Example:

Send command: 00,50,27,FF,02,00,FB,F3

(set 0x02 DO1 power on default to high)

Response: 00,50,27,00,1B,C5

7.19 Sub Command Function :0x28 Get power on value

Command	ID 50 28 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	28	Sub Function Code
	00	Reserve
Response	ID 50 28 FF NN 00 (CRC)	
	ID	00~FF
	50	Function Code
	28	Sub Function Code
	0xFFNN	Get Power on value (NN=00~FF)
	00	Reserve
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Description:

Get power on DO value.

Example:

Send command: 00,50,28,00,1E,35

Response: 00,50,28,FF,02,75,39

(get 0x02 DO1 power on default to high)

7.20 Sub Command Function :0x29 Set Continuous mode

Command	ID 50 29 00 01 MM NN 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	29	Sub Function Code
	0001~0002	Digital input channel number 0001(DI1) or 0002(DI2)
	0~6	Mode select
	00~FF	0x00=no pulse delay 0x01=0.5s 0xFF=127.5s
	00	Reserve
Response	ID 50 29 00 (CRC) :OK	
	ID	00~FF
	50	Function Code
	29	Sub Function Code
	00	Reserve
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

When set mode success will clear CHX counter value.

※2

Continuous Mode	Mode Value	Trigger Direction	DOn	DIn Trigger
program	0	--	Set by user	--
bypass	1	--	DOn=DIn	--
bypass invert	2	--	DOn= $\overline{DIn}$	--
bypass trigger high	3	DIn ↓	DOn=DIn+X(s)	DOn=H{X(s)}
bypass invert trigger low	4	DIn ↓	DOn= $\overline{DIn}$ +X(s)	DOn=L{X(s)}
bypass invert trigger high	5	DIn ↑	DOn= $\overline{DIn}$ +X(s)	DOn=H{X(s)}
bypass trigger low	6	DIn ↑	DOn=DIn+X(s)	DOn=L{X(s)}

Description:

Set Continuous mode.

Example:

Send command: 00,50,29,00,01,00,00,00,16,0B

(set DI0 to program mode)

Response: 00,50,29,00,1F,A5

7.21 Sub Command Function :0x2A Get Continuous mode

Command	ID 50 2A 00 01 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	2A	Sub Function Code
	0001~0002	Digital input channel number 0001(DI0) or 0002(DI1)
	00	Reserve
Response	ID 50 2A MM NN 00 (CRC) :OK	
	ID	00~FF
	50	Function Code
	2A	Sub Function Code
	0~6	Mode select
	00~FF	0x00=no pulse delay 0x01=0.5s 0xFF=127.5s
	00	Reserve
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Description:

Get Continuous mode.

Example:

Send command: 00,50,2A,00,01,00,C9,9F

Response: 00,50,2A,00,00,00,C8,0F

(get 0x00 DI0 continuous = program mode)

7.22 Sub Command Function :0x2B Trigger DO

Command	ID 50 2B 00 01 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	2B	Sub Function Code
	0001~0002	Digital input channel number 0001(DI1) or 0002(DI2)
	00	Reserve
Response	ID 50 2B 00 (CRC) :OK	
	ID	00~FF
	50	Function Code
	2B	Sub Function Code
	00	Reserve
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Description:

Trigger DO.

Example:

Send command: 00,50,2B,00,01,00,C8,63

(trigger DI0 reference ※2)

Response: 00,50,2B,00,1E,C5

7.23 Sub Command Function :0x2C Get All Status

Command	ID 50 2C 00 (CRC)	
Question	ID	00~FF
	50	Function Code
	2C	Sub Function Code
	00	Reserve
Response	ID 50 2C MN HH LL (CRC) :OK	
	ID	00~FF
	50	Function Code
	2C	Sub Function Code
	MN	M=DO,N=DI M=DO Bit0[DI0], Bit1[DI1], Bit2[DI2] N=DI Bit4[DO0], Bit5[DO1],
	HH LL	=0~65535(sensor value)
	ID D0 00 (CRC) : Error	
	D0	Function Code(50+80)
	00	Reserve

Description:

Get Device all status.

Example:

Send command: 00,50,2C,0F,5C,F1

Response: 00,50,2C,07,00,18,79,4C

(get 0x07 DI0~DI2 to high, DO0~DO1 to low)

(get sensor value 0x0018=24)

7.24 01(0x01)Read Digtal Input Value

Command	ID 01 00 SS 00 01 (CRC)	
Question	ID	00~FF
	01	Function Code
	SS	0x 20~0x 22 for DI value 0x 40~0x 42 for DI Latch high value 0x 60~0x62 for DI Latch low value
	0001~0003	Digital input channel number
Response	ID 01 BC 00 (CRC) :OK	
	ID	00~FF
	01	Function Code
	BC	Byte Counter
	0x00~0xFF	Input channel readback value Bit0[DI0], Bit1[DI1]
	ID 81 00 (CRC) : Error	
	81	Error Code
	00	Syntax error
	01	Data Format error
	02	Start channel error
	03	I/O out of range

Description:

Read Digital Input vlaue.

Example:

Send command: 00,01,00,20,00,02,BD,D0

(read DI0~DI1 value)

Response: 00,01,01,03,10,75

(DI0~DI1 to high)

7.25 02(0x02)Read Digtal Input Value

Command	ID 02 00 0F 00 01 (CRC)	
Question	ID	00~FF
	02	Function Code
	0000~0002	Staring channel
	0001~0003	Digital input channel number
Response	ID 02 BC 00 (CRC) :OK	
	ID	00~FF
	02	Function Code
	BC	Byte Counter
	0x00~0xFF	Input channel readback value Bit0[DI0], Bit1[DI1]
	ID 82 00 (CRC) : Error	
	82	Error Code
	00	Syntax error
	01	Data Format error
	02	Start channel error
	03	I/O out of range

Description:

Read Digital Input vlaue.

Example:

Send command: 00,01,00,20,00,02,BD,D0

(read DI0~DI1 value)

Response: 00,01,01,03,10,75

(DI0~DI1 to high)

7.26 03(0x03)Read Digtal Input Count Value

Command	ID 03 00 00 00 01 (CRC)	
Question	ID	00~FF
	03	Function Code
	0000~0002	Staring channel
	0001~0002	Digital input channel number
Response	ID 03 BC Data (CRC) :OK	
	ID	00~FF
	03	Function Code
	BC	Byte Count
	Data(2Byte)	Input channel count value
	ID 83 00 (CRC) : Error	
	83	Error Code
	00	Syntax error
	01	Data Format error
	02	Start channel error
	03	I/O out of range

Description:

Digital Input low to high counter add 1.

Read digital input count value. Maximum to 65535.

Example:

Send command: 00,03,00,00,00,02,C5,DA

(read DI0~DI1 counter value)

Response: 00,03,04,00,00,00,00,EA,F3

(DI0) (DI1) (DI2) (DI3)

7.27 04(0x04)Read Digtal Input Count Value

Command	ID 04 00 00 00 01 (CRC)	
Question	ID	00~FF
	04	Function Code
	0000~0002	Straring channel
	0001~0002	Digital input channel number
Response	ID 04 BC Data (CRC) :OK	
	ID	00~FF
	04	Function Code
	BC	Byte Counter
	Data(2Byte)	Input channel count value
	ID 84 00 (CRC) : Error	
	84	Error Code
	00	Syntax error
	01	Data Format error
	02	Start channel error
	03	I/O out of range

Description:

Digital Input low to high counter add 1.

Read digital input count value. Maximum to 65535.

Example:

Send command: 00,03,00,00,00,02,C5,DA

(read DI0~DI1 counter value)

Response: 00,03,04,00,00,00,00,EA,F3

(DI0) (DI1) (DI2) (DI3)

7.28 05(0x05)Clear the Digital Input count value (Single channel)

Command	ID 05 20 00 FF 00 (CRC)	
Question	ID	00~FF
	05	Function Code
	2000~2001	Input channel number
	FF00	input value
Response	ID 05 20 00 FF 00 (CRC)	
	ID	00~FF
	05	Function Code
	2000~2001	Input channel number
	FF00	input value
	ID 85 00 (CRC) : Error	
	85	Error Code
	00	Syntax error
	01	Data Format error
	02	Start channel error
	03	I/O out of range

Description:

Clear single channel digital input count value.

Example:

Send command: 00,05,20,00,FF,00,86,2B

(clear DI0 count value)

Response: 00,05,20,00,FF,00,86,2B

7.29 06(0x06)Set the Digital Output value (Single channel)

Command	ID 06 00 00 FF 00 (CRC)	
Question	ID	00~FF
	06	Function Code
	0000~0001	Output Start Channel 0000(DO0) or 0001(DO1)
	FF00 or 0000	Output Value
Response	ID 06 00 00 FF 00 (CRC)	
	ID	00~FF
	06	Function Code
	0000~0001	Output Start Channel
	FF00 or 0000	Output Value
	ID 86 00 (CRC) : Error	
	86	Error Code
	00	Syntax error
	01	Data Format error
	02	Start channel error
	03	I/O out of range

Description:

Set single channel Digital Output value.

Example:

Send command: 00,06,00,00,FF,00,C9,EB

(set DO0 to high)

Response: 00,06,00,00,FF,00,C9,EB

7.30 07(0x07) Set the Digital Output value (Multi channel)

Command	ID 07 00 00 00 02 BC 00 3F (CRC)	
Question	ID	00~FF
	07	Function Code
	0000~0001	Output Start Channel
	0001~0002	Output Channel Nunber
	BC	0x02
	00FF	Output Value
Response	ID 07 00 00 00 02 (CRC)	
	ID	00~FF
	07	Function Code
	0000~0001	Output Start Channel
	0001~0002	Output Channel Nunber
	ID 87 00 (CRC) : Error	
	87	Error Code
	00	Syntax error
	01	Data Format error
	02	Start channel error
	03	I/O out of range

Description:

Set Multi channel Digital Output value.

Example:

Send command: 00,07,00,00,00,02,02,00,03,AB,6F

(set DO0~DO1 to high)

Response: 00,07,00,00,00,02,34,1A

7.31 08(0x08)Read Digital Output State(Multi channel)

Command	ID 08 00 00 00 01 (CRC)	
Question	ID	00~FF
	08	Function Code
	0000~0001	Output Start Channel
	0001~0002	Output Channel Number
Response	ID 08 BC 00 (CRC) :OK	
	ID	00~FF
	08	Function Code
	BC	Byte Counter
	0x00~0xFF	Output channel readback value
	ID 88 00 (CRC) : Error	
	88	Error Code
	00	Syntax error
	01	Data Format error
	02	Start channel error
	03	I/O out of range

Description:

Read Multi channel Digital Output value.

Example:

Send command: 00,08,00,00,00,02,60,1B

Response: 00,08,01,00,80,76

(read 0x00 DO0~DO1 to all low)

7.32 15(0x0F)Clear the Digital Input count value (Multi channel)

Command	ID 0F 20 00 00 01 BC FF FF (CRC)	
Question	ID	00~FF
	0F	Function Code
	2000~2002 or 0x0101~0x0103	Input channel number
	0x0001~0x0003	Digital input channel number
	BC	0x02
	0xFFFF or 0x0000	input value
Response	ID 0F 20 00 00 03 (CRC)	
	ID	00~FF
	0F	Function Code
	2000~2003 or 0x0101~0x0103	Input channel number
	0001~0003	Digital input channel number
	ID 8F 00 (CRC) : Error	
	8F	Error Code
	00	Syntax error
	01	Data Format error
	02	Start channel error
	03	I/O out of range

Description:

Clear Multi channel digital input count value.

Example:

Send command: 00,0F,20,00,00,01,02,FF,FF,CA,FE

(clear DI0 count value)

Response: 00,0F,20,00,00,01,9E,1A

Reference examples

7.33 Initialization serial port

1. Set Serial Port Number to your COM(example COM1)
2. Set Baud rate 9600

Example C#

```
using MBus;

bool ret=false;
public ModBus m_ModBusSerial=new ModBus();

ret=m_ModBusSerial.Init(1, 9600);    //Serial Port:COM1, Baud rate:9600
                                                                    //if ret=false init COM1 failed
                                                                    //if ret=true init COM1 success
```

7.34 Check device exist

1.Sending Get Product Name Command to check device exist.
Send command:00,50,00,00,00,35
Response command:00,50,00,00,44,49,34,4F,34,2D,44,34,34,30,30,32,00,00,E8,26

Example C#

```
string modelname = null;
byte id=0x00;

if (m_ModBusSerial.GetProductName((byte)id, out modelname) == (int)MB_RET.RET_SUCCESS)
{
        //success
}
else
{
        //failed
}
```

7.35 Set DO0 to High

1.Sending Set the Digital Output value Command
Send command:00,06,00,00,FF,00,C9,EB
Response command:00,06,00,00,FF,00,C9,EB

Example C#

```
int Ret=0;
byte id=0x00;
```

```
Ret = m_ModBusSerial.SetDigitalOutputValueSingle(id, 0,1);

if (Ret == (int)MB_RET.RET_SUCCESS)
{
        //success
}
else
{
        //failed
}
```

7.36 Note: Digital I/O Sample Code

```
//File of the Main.cpp
//=============================================================
//This code is for test I931 Super I/O.
//=============================================================
#include <dos.h>
#include <conio.h>
#include <stdio.h>
#include <stdlib.h>

//=============================================================
#define W83627EHG_INDEX_PORT 0x2E
#define W83627EHG_DATA_PORT 0x2F
//=============================================================
#define W83627EHG_REG_LD 0x07
//=============================================================
#define W83627EHG_UNLOCK 0x87
#define W83627EHG_LOCK 0xAA

//=============================================================
void ClrKbBuf(void);
void Unlock_W83627EHG(void);
void Lock_W83627EHG(void);
void Set_W83627EHG_Reg(unsigned char,unsigned char);
unsigned char Get_W83627EHG_Reg(unsigned char);
int main ();
//=============================================================
int main ()
{
        unsigned char ucDO = 0; //data for digital output
        unsigned char ucDI; //data for digital input
        unsigned char ucBuf;
        Set_W83627EHG_Reg(0x07,0x07);//switch to logic device 7

//      PIN 121~128 function select
//      Bit0 = 0 -> Game Port.
//     = 1 -> GPIO1.
   ucBuf = Get_W83627EHG_Reg(0x29);
        Set_W83627EHG_Reg(0x29,ucBuf|0x01);

//  Bit0 = 0 -> GPIO1 is inactive.
//      Bit1 = 1 -> Activate GPIO1.
        ucBuf = Get_W83627EHG_Reg(0x30);
        Set_W83627EHG_Reg(0x30,ucBuf|0x01);//Activate GPIO1
```

```
	Set_W83627EHG_Reg(0xF0,0x0F);//switch GPIO Input(1)/Output(0) port

	Set_W83627EHG_Reg(0xF1, 0x00); //clear
	ucDI = Get_W83627EHG_Reg(0xF1) & 0x0F;
	ClrKbBuf();
	while(1)
	{
		ucDO++;
		Set_W83627EHG_Reg(0xF1, ((ucDO & 0x0F) << 4));
		ucBuf = Get_W83627EHG_Reg(0xF1) & 0x0F;
		if (ucBuf != ucDI)
		{
			ucDI = ucBuf;
			printf("Digital I/O Input Changed. Current Data is 0x%X\n",ucDI);
		}
		if (kbhit())
		{
			getch();
			break;
		}
		delay(500);
	}
	return 0;
}
//============================================================
void ClrKbBuf(void)
{
	while(kbhit())
	{ getch(); }
}
//---------------------------------------------------------------------------

void Unlock_W83627EHG (void)
{
	outportb(W83627EHG_INDEX_PORT, W83627EHG_UNLOCK);
	outportb(W83627EHG_INDEX_PORT, W83627EHG_UNLOCK);
}
//============================================================
void Lock_W83627EHG (void)
{
	outportb(W83627EHG_INDEX_PORT, W83627EHG_LOCK);
}
//============================================================
void Set_W83627EHG_Reg( unsigned char REG, unsigned char DATA)
```

```
{
	Unlock_W83627EHG();
	outportb(W83627EHG_INDEX_PORT, REG);
	outportb(W83627EHG_DATA_PORT, DATA);
	Lock_W83627EHG();
}
//=============================================================
unsigned char Get_W83627EHG_Reg( unsigned char REG)
{
	unsigned char Result;
	Unlock_W83627EHG();
	outportb(W83627EHG_INDEX_PORT, REG);
	Result = inportb(W83627EHG_DATA_PORT);
	Lock_W83627EHG();
	return Result;
}
//=============================================================
```

Note2: Watchdog Sample Code

```
//File of the Watchdog.cpp
//=============================================================
//This Sample code is for Watchdog timer configuration
//=============================================================
//=============================================================
#include <dos.h>
#include <conio.h>
#include <stdio.h>
#include <stdlib.h>

//=============================================================
#define W83627_INDEX_PORT 0x2E
#define W83627_DATA_PORT 0x2F
#define W83627_UNLOCK 0x87
#define W83627_LOCK 0xAA
//#define Watchdog_timeout 10

//=============================================================
void Unlock_W83627(void);
void Lock_W83627(void);
void Set_W83627_Reg(unsigned char,unsigned char);
unsigned char Get_W83627_Reg(unsigned char);
//=============================================================

int main ()
{

        int Watchdog_timeout = 10;
        printf("Input Watchdog Timer time-out value [0-255] : ");
        scanf("%d",&Watchdog_timeout);
        if(Watchdog_timeout <= 0 || Watchdog_timeout > 255)
        {
                printf("Time-out value out of range!!\n\n");
                printf("Input Watchdog Timer time-out value [0-255] : ");
                scanf("%d",&Watchdog_timeout);

        }
        Set_W83627_Reg(0x07,0x08);//switch to logic device 8

        Set_W83627_Reg(0x30,0x01);//Activate watchdog

        Set_W83627_Reg(0xF5,0x06);//Select WDTO# count mode.Second Mode.
```

```
	Set_W83627_Reg(0xF6,Watchdog_timeout); //Set Watch Dog Timer Time-out value

	//Set_W83627_Reg(0xF7,0xC0); //Clear Watchdog timer event

	int i = Watchdog_timeout;
	while(1)
	{
		if (kbhit())
		{
			if(getch()==0x1B)	//Esc
				break;
			else{
				i=Watchdog_timeout;	//Reset Watchdog timer
				Set_W83627_Reg(0xF6,Watchdog_timeout);	//Set	Watch
Dog Timer Time-out value
			}
		}
		clrscr();
		if(i>0){
			i--;
			printf("After %2d sec reset computer!\n",i);
			printf("Press any key to reset watchdog timer!\n");
			printf("Press [Esc] to exit!\n");

		}
		else
			printf("Watchdog timer fail!");
		delay(1000);
	}
	Set_W83627_Reg(0xF6,0);		//Disable Watchdog timer

	return 0;
}


//-----------------------------------------------------------------------

void Unlock_W83627 (void)
{
	outportb(W83627_INDEX_PORT, W83627_UNLOCK);
	outportb(W83627_INDEX_PORT, W83627_UNLOCK);
}
//=============================================================
void Lock_W83627 (void)
{
```

```
	outportb(W83627_INDEX_PORT, W83627_LOCK);
}
//=============================================================
void Set_W83627_Reg( unsigned char REG, unsigned char DATA)
{
	Unlock_W83627();
	outportb(W83627_INDEX_PORT, REG);
	outportb(W83627_DATA_PORT, DATA);
	Lock_W83627();
}
//=============================================================
unsigned char Get_W83627_Reg( unsigned char REG)
{
	unsigned char Result;
	Unlock_W83627();
	outportb(W83627_INDEX_PORT, REG);
	Result = inportb(W83627_DATA_PORT);
	Lock_W83627();
	return Result;
}
//=============================================================
```

Note3:

There is some problem when install software in CF Card as following condition:

1. Master: IDE CD-ROM (PIONEER DVD-227A)
   Slave: CF Card (Transcend 120X-standard)
   CF Card is not founded.

2. Master: CF Card (InnoDisk)
   Slave: IDE CD-ROM (Plextor PX-760A)
   CD-ROM is not founded.

3. Master: CF Card (InnoDisk)
   Slave: IDE CD-ROM (PIONEER)
   CF Card is not founded.

4. Master: CF Card (Transcend 120X-standard)
   Slave: IDE CD-ROM (Plextor PX-760A)
   CD-ROM is not founded.

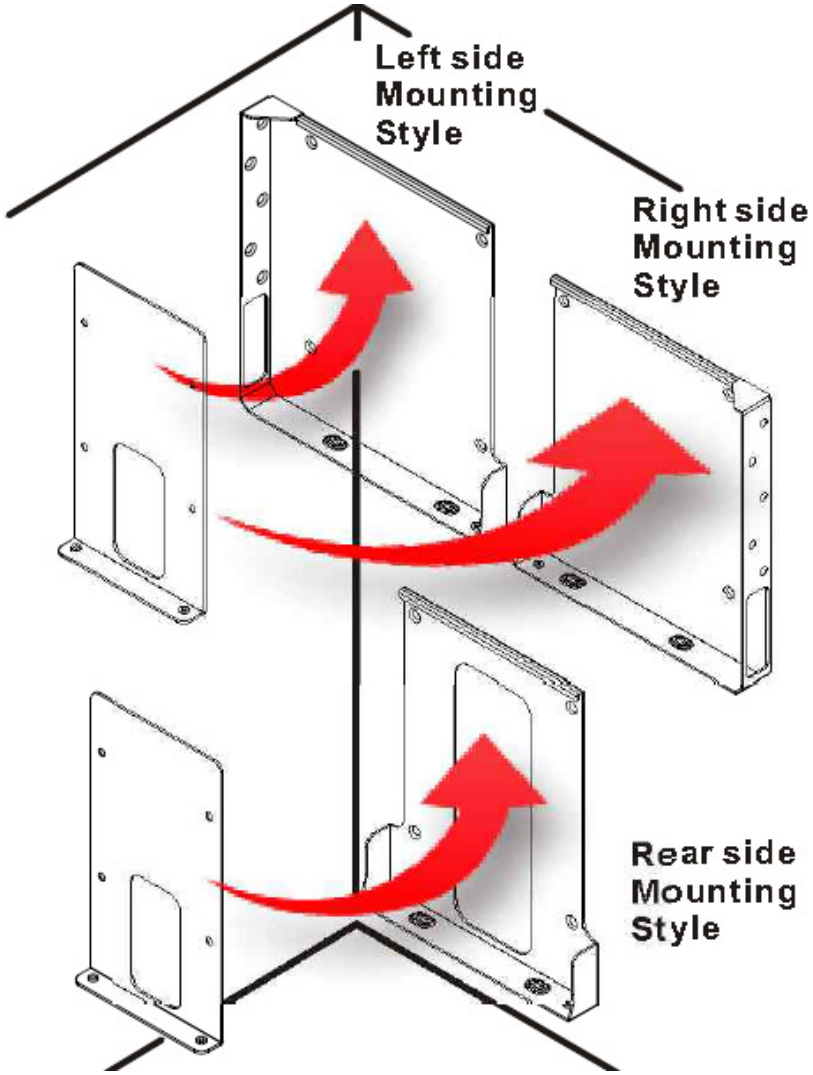
5. Master: IDE CD-ROM (Plextor PX-760A)
   Slave: CF Card (Transend 120X-standard)
   CF Card is not founded.

CHAPTER 9

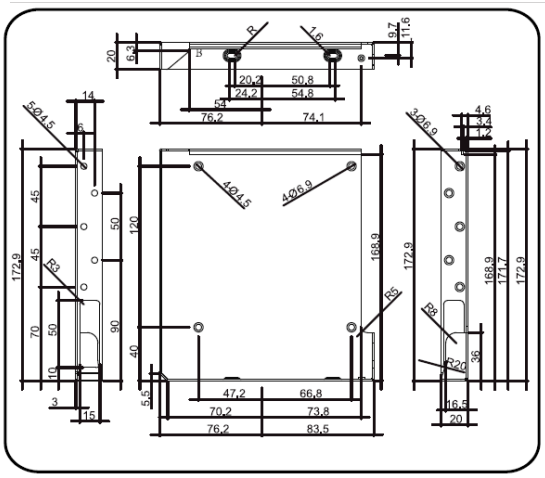
Bracket Mounting Guide

This chapter describes how to mount the bracket on the wall

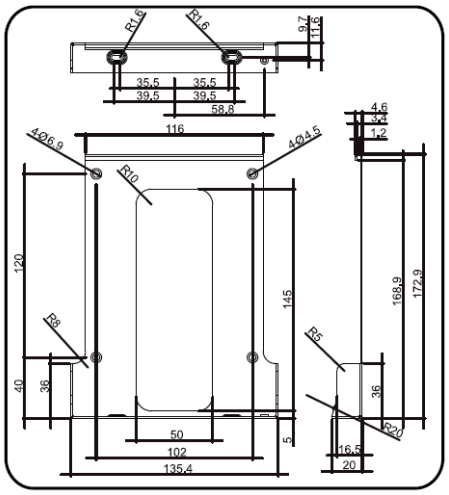
Exploded View of Wall Mounting Bracket



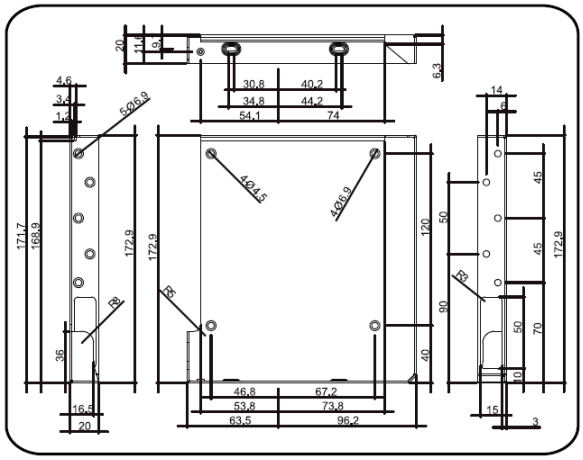
Dimensions of Bracket



Left Side



Rear Side



Right Side